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EXAMINER

TUNG, TA HSUNG

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/029,626

Applicant(s)

DALMIA

ITAL

Examiner

T. TUNG

Group Art Unit

1753

Paper No. 5

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☐ Responsive to communication(s) filed on \_\_\_\_\_
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.  
Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
  - ☐ All ☐ Some\* ☐ None of the:
    - ☐ Certified copies of the priority documents have been received.
    - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
    - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other \_\_\_\_\_

Office Action Summary

Art Unit: 1102

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 9 fail to particularly point out the invention in that they do not recite the first cell comprising the first sensing electrode and the first counter electrode in operative connection with the second cell comprising the second sensing electrode and the second counter electrode. Thus, the claim language includes the scenario wherein the first cell may be in one city while the second cell may be in another city. Surely, that would be beyond the scope of applicant's invention.

In all claims, the electrolytic material should be pointed out to be --solid--, since applicant's invention clearly does not apply to liquid electrolytes.

Claim 2 is not a proper dependent claim in that its parent claim 1 already recites a minimum of two substrates. Claim 2 only requires a minimum of one substrate and is therefore broader than claim 1. It is axiomatic that a proper dependent claim can not be broader than its parent claim, because it has all the limitations of the parent.

Claim 11, line 2, "Gold" should not be capitalized.

Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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The disclosure is confusing. At page 6, lines 5-18, of the specification elements 52, 62 and 30 are all described as the electrolytic material. Which is the actual electrolyte?

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Maclay et al 5,716,506.

Maclay discloses a gas sensor comprising a first cell and a second cell. Each cell has a sensing electrode 14 and a counter electrode 16 deposited on a surface of a first substrate and being covered by a Nafion electrolyte. One cell differs from the other cell by either having its electrolyte with a different thickness than that of the other cell or by having its sensing electrode made of a material different from that of the other cell. See col. 7, line 50 to col. 10, line 10 (particularly col. 9, lines 64-67 and col., 10, lines 12-18).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maclay et al.

This claim differs by calling for one cell to be different from the other cell both by the electrolyte thickness and by the sensing electrode material.

It would have been obvious for Maclay to provide one of the cells with both of these differences from the other cell instead of each difference, since both of these differences are taught by the patent itself. No unexpected result is seen to be derived from this modification.

Claims 7, 8, 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maclay et al in view of Otagawa et al 4,900,405.

These claims differ by calling for a hydration source for the Nafion electrolyte.

Otagawa discloses a water source 43, 456 for a Nafion electrolyte. See figures 2 and 10; col. 7, line 12 and col. 9, line 63. It would have been obvious for Maclay to incorporate a water source for its Nafion electrolyte, because a Nafion requires hydration to conduct ions (as discussed at col. 11, line 24 of Otagawa).

Claims 3, 4, 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maclay et al, with or without Otagawa, in view of Campbell et al 4,525,704 or Semersky et al, 4,172,770.

These claims differ by calling for a reference electrode for each cell.

Campbell discloses a sensor with a sensing electrode 24, a counter electrode 38 and a reference electrode 36, wherein the functions of the counter electrode and the reference electrode can be combined into one electrode. See col. 2, line 52 to col. 4, line 25.

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Semersky discloses a sensor with a sensing electrode 25, a counter electrode 24 and a reference electrode 23 (col. 3, lines 64-67). At col. 4, lines 40-54, the relative merits of a 3-electrode system (a less variable potential is maintained for the sensor) and a 2-electrode system is discussed.

It would have been obvious for Maclay to add a reference electrode in view of Campbell or Semersky, because the relative merit of a 3-electrode system (a less variable sensor potential) versus a 2-electrode system (elimination of an electrode means a saving in material cost and a more streamlined configuration) is known. Selecting one system over the other is a matter of design choice. The obviousness is believed to be enhanced by the fact that Otagawa shows a Nafion electrolyte sensor with three electrodes 18, 30, 32 (see figure 1; col. 6, lines 18-22).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maclay et al, with or without Otagawa et al, in view of Campbell et al or Semersky et al and Mase et al 3,647,364.

This claim further differs in calling for the sensing electrodes of the two cells to share the counter electrode and the reference electrode.

Mase discloses a common electrode 12 being shared by one cell 12-22 and another cell 12-18. See figure 2; col. 8, lines 46-64. It would have been obvious for Maclay to make one counter and one reference electrode common to the sensing electrode of each cell in view of Mase, because eliminating electrodes would mean a saving in material cost. The electrodes are typically made of Pt or Au, which are expensive precious metals.

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Wright et al 4,721,601 (figure 6) shows electroactive polymer layers 60 of varying thicknesses deposited over a plurality of electrodes. The electroactive polymer presumably acts as an electrolyte. However, this reference appears to be no more pertinent than Maclay.

Otagawa (figure 3; col. 6, lines 60-68) shows a plurality of cells arranged on a common substrate.

Madou et al 4,812,221 discloses a sensor comprising electrodes covered by a Nafion electrolyte 26. See figure 1.

The examiner can be reached at 703-308-3329. His supervisor Nam Nguyen can be reached at 703-308-3322. Any general inquiry should be directed to the receptionist at 703-308-0661. A fax number for TC 1700 is 703-872-9310.



Ta Tung

Primary Examiner

Art Unit 1753